



**UNIVERSITI KUALA LUMPUR  
MALAYSIA FRANCE INSTITUTE**

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**FINAL EXAMINATION  
JANUARY 2011 SESSION**

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**SUBJECT CODE : FWD 12103**  
**SUBJECT TITLE : WELDING AND CUTTING PROCESSES**  
**LEVEL : DIPLOMA**  
**TIME / DURATION : 12.30pm – 2.30pm  
( 2 HOURS )**  
**DATE : 05 MAY 2011**

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**INSTRUCTIONS TO CANDIDATES**

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1. Please read the instructions given in the question paper CAREFULLY.
2. This question paper is printed on both sides of the paper.
3. Please write your answers on the answer booklet provided.
4. ~~Answer should be written in blue or black ink except for sketching, graphic and illustration.~~
5. This question paper consists of TWO (2) sections. Section A and B. Answer all questions in Section A. For Section B, answer two (2) questions only.
6. Answer all questions in English.

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THERE ARE 4 PAGES OF QUESTIONS, EXCLUDING THIS PAGE.

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**SECTION A (Total: 60 marks)****INSTRUCTION: Answer all questions.****Please use the answer booklet provided.****Question 1**

- a. What is SMAW (Shielded Metal Arc Welding) (5 marks)
- b. Before you start welding, state what are the safety measures you must always check? (5 marks)
- c. State five (5) advantages of shielded metal arc welding process? (10 marks)

**Question 2**

Answer the following questions by referring to figure 1 below:

**ER70S-X***Figure 1: Specification for GMAW Filler Wire*

- (a) Define 'E and R' according to the AWS specification (5 marks)
- (b) What does the 'X' represent? (5 marks)
- (b) The letter 'S' is represent for? (5 marks)
- (c) Determine the minimum tensile strength of the ER70S-X (5 marks)

**Question 3**

- (a) Sketch and name the four fundamental welding positions (10 marks)
- (b) Why Arc Rays and Eye Protection are important safety measures to welders? (10 marks)

**Question 4**

Gas Tungsten Arc Welding (GTAW) process is expensive but produces high quality weld. With that statement, answer the following questions.

- (a) How does GTAW process produce high quality weld? (5 marks)
- (b) What materials can be welded by using alternating current (AC)? (5 marks)
- (c) State the factors in choosing the tungsten electrode for gas tungsten arc welding process? (10 marks)

**SECTION B (Total: 40 marks)**

**INSTRUCTION: Answer TWO (2) questions only.**

**Please use the answer booklet provided.**

**Question 1**

(a) Describe the principles operation of Shielded Metal Arc Welding (SMAW) by using simple drawing accordingly.

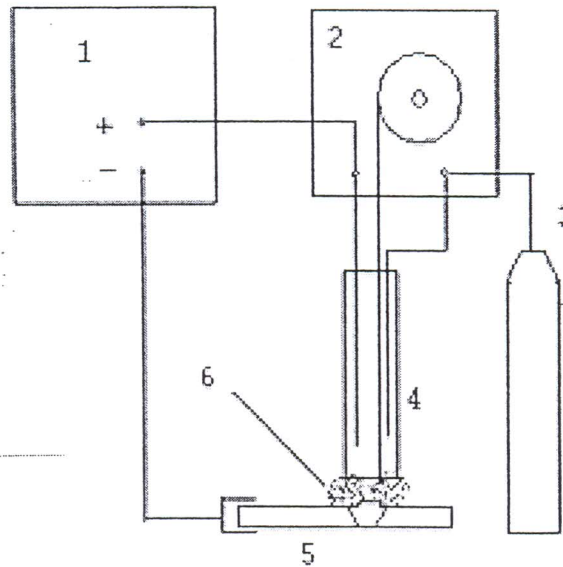
(10 marks)

(b) State the characteristics of the electrode below?

**"E6010"**

(10 marks)

**Question 2**



*Figure 2. GMAW Welding Component Summary*

(a) In the gas metal arc welding process, list the component summary as in the Figure 2.

(10 marks)

- (b) State five (5) advantages of the gas metal arc welding process. (10 marks)

**Question 3**

Answer the following questions by referring to figure 3.

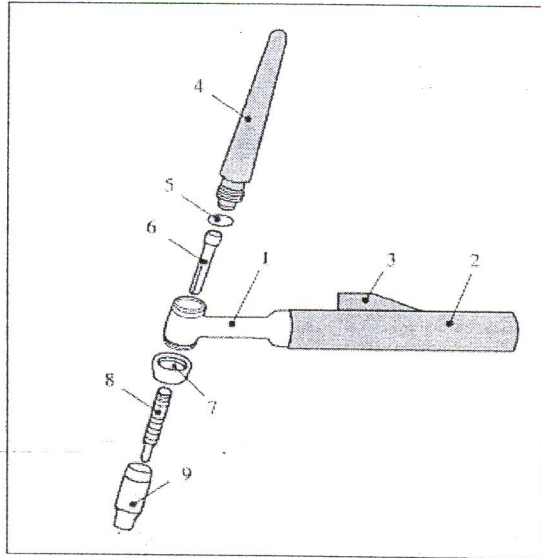


Figure 3: GTAW Torch

- (a) Name all parts of Gas Tungsten Inert Gas (GTAW) torch shown in figure 3? (9 marks)
- (b) What is the function of collect in Tungsten Inert Gas (TIG) torch? (6 marks)
- (c) What type of gases used in Gas Tungsten Arc Welding (GTAW)? (5 marks)

**END OF QUESTION**